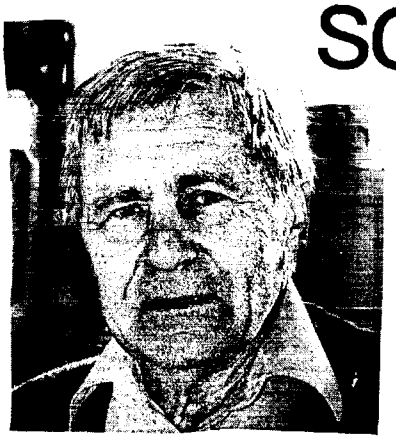
The Guardian
Friday February 12 1999

Food scandal

Ousted scientist and the damning research into food safety



92N-0139

Laurie Flynn, Michael Gillard and **Andy Rowell** on the tests on rats that raised serious questions about the effects of genetically modified food on internal organs

The team found that the liver and heart sizes of the rats were decreasing — worse still, the brain was getting smaller

LAST WEEK in parliament William Hague asked Tony Blair why the Government was ignoring advice from its environmental advisers to call a three-year moratorium on the commercial release of genetically modified (GM) crops until more research is done.

The Prime Minister, wary of mounting public concern, especially in middle England, replied ebulliently: "It is important that we proceed on the basis of the scientific evidence. The first stage of meeting public concern is to debate the information."

Today the Guardian publishes for the first time worrying details of publicly funded scientific research. The authors, two eminent British scientists, demand that the Government honours its commitment to transparency on the issue of biotechnology and initiates an immediate evaluation of the potential health risks.

They are backed by 20 international scientists, who call on the Government to release further funding for follow-up research, and to clear one of the authors who has been maligned.

The story begins in October 1995 when the Scottish Office commissioned a research project from the Aberdeen-based Rowett Research Institute into the effect of GM crops on animal nutrition and the environment. This included, for the first time, feeding GM potatoes to rats to see if they had any harmful effects on their guts, bodies, metabolism and health.

A former senior Scottish Office official involved in commissioning the project told the Guardian there was "little regard" at the time for research into the human nutritional and environmental consequences of GM foods. The £1.6 million research grant was allocated to redress this imbalance. Dr Arpad Pusztai, a senior research scientist at the Rowett, beat off 28 other tenders to co-ordinate the project. He has always kept an open mind about GM foods and conditionally supported their release as long as there were rigorous and independent trials.

The other members of the project were the Dundee-based Scottish Crop Research Institute (SCRI) and Durham University biology department which grew the GM potato used in the feeding trials. All three bodies had links with the biotech industry through the pursuit of commercial research contracts.

There was no reason to believe that the research project would produce the controversial findings that could threaten the scientific foundations of the biotech industry they sought to embrace.

In December 1996, Dr Pusztai suddenly became aware of the inadequate level of existing scientific trials on GM maize when a member of the Government's Advisory Committee on Novel Food Production asked him to assess the validity of a licensing application from one of the industry's leading companies.

He faxed his two-page assessment to the Ministry of Agriculture warning that tests into nutritional performance, toxicology or allergenicity were insufficient and inadequate.

In his final paragraph he asked for "proper experiment" with the GM plants and added: "Do not leave it to chance."

There was no legal requirement for further tests to be carried out and approval for licensing was granted.

His own project, now a year old, was also presenting difficulties. Rows had broken out after preliminary findings emerged from Dr Pusztai's team and the SCRI and Durham University's biology department showed growing discomfort – sources told the Guardian – about the validity of some of his methodology and the implication of the results.

A Scottish Office immunologist was called in. She approved the methodology used by Dr Pusztai's team.

The preliminary results of Dr Pusztai's work had begun to show unexpected and worrying changes in the size and weight of the rats' bodily organs. The team found liver and heart sizes were decreasing – worse still, the brain was getting smaller. There were also indications of a weakening of the immune system.

With so many unanswered questions, far more public money would be needed, Dr Pusztai concluded. But the Guardian understands that the Scottish Office and the Rowett Institute declined his funding requests.

For Dr Pusztai, the funding crisis and the prospect of his unexpected results not being published led him to reconsider his attitude to the media.

In January last year he appeared, with the Rowett Institute's permission, on BBC2's Newsnight and voiced his concerns in measured terms about weakening of the immune system in the rats fed GM potatoes.

> The scientists are asking for further funding to examine the problems

In April, Granada TV's World in Action approached Dr Pusztai and – again with the institute's consent – he gave an interview which was broadcast in a documentary that August.

Dr Pusztai told ITV viewers that he would not eat GM food. He found it "very, very unfair to use our fellow citizens as guinea pigs. We have to find [them] in the laboratory," he insisted.

Two days later Dr Pusztai was summarily suspended and forced to retire by the Rowett Institute's director, Professor Philip James, who had personally cleared the interview with Granada and put his name to official press releases supporting the programme.

Chronology

June 1998: Government inspectors' report criticises Rowett Institute, praises Pusztai's department.

June 1998: Additional funding to continue Pusztai research denied.

August 10 1998: World in Action film broadcast. Pusztai says he would not eat GM potatoes. James press release praises Pusztai.

August 11 1998: Demand in Commons for moratorium on GM food sales. Second James press release backs Pusztai.

August 12 1998: James suspends Pusztai, announces audit of his research and regrets release of "misleading information".

August 14 1998: Biotech company attacks World in Action and Pusztai.

August 21 1998: Audit report completed.

October 21 1998: Government announces one year moratorium, sets up cabinet committee on bio-technology and GM foods.

October 1998: Stanley Ewen completes rat stomach analysis. Identifies further organ damage.

October 1998: Pusztai confirms original findings.

October 28 1998: Audit report released. Clears Pusztai of scientific fraud but says his findings are not supported by the data.

February 4 1999: Government food safety committee asks Ewen for research details.

GUARDIAN WEEKLY
February 21 1999

The meek fight for their inheritance

Katharine Inez Ainger reports on the massive rise of the environmental movement in India

Critical mass . . . thousands take to the streets to demand India's withdrawal from the WTO

MORE than 50 years after India's struggle for independence ended in victory, another resistance struggle is being waged. Rural India is home to one of the largest, most dynamic and vocal environmental movements in the world.

Subsistence farmers, traditional fisherfolk, tribal peoples (Adivasis), "untouchables" (Dalits), sweatshop workers, women's groups and ordinary villagers are all vociferously opposing what new coalitions of environmental and social movements are calling the "recolonisation" by global corporations and international institutions such as the World Trade Organisation (WTO), the International Monetary Fund (IMF) and the World Bank.

In many important protests and actions these "coalitions of the dispossessed" have deeply embarrassed state and national governments and made it difficult for transnational corporations to operate in the country.

For all India's rapid modernisation and growing middle classes, 60-70 per cent of the population, or more than 600 million people, are desperately poor and depend directly on the environment for survival. Environmentalism, they say, is not so much a luxury, as in the West, but a necessity.

"It is the life resource for the two-thirds majority of our population whose subsistence directly depends on the water, the forests and the land. It is about justice," says Thomas Kocherry, a leader of the National Fish Workers' Forum.

The new coalitions have mostly emerged since 1992, when India launched its economic liberalisation regime in the name of "development" and "globalisation". Activists argue that structural adjustment and neo-liberal reform have created wealth for a small élite, but deepened poverty for the vast majority and led to a rapid increase in the rate of destruction of natural resources.

A 1997 Gallup poll suggested that two out of three Indians believe their standard of living has fallen or stagnated after five years of economic reform. Large corporations, welcomed into the country by a government keen for foreign investment, have faced extraordinary levels of community resistance and "Quit India" style campaigning.

From the peasant farmers who gathered in huge numbers outside the Karnataka state government offices and laughed all day at their policies, to villagers who swore to drown if their river was dammed, to the fishing unions' strike that involved mass fasting and harbour blockades against industrial overfishing, the protest tactics are as diverse as the movement itself.

Among the largest of the coalitions are the National Alliance of Peoples' Movements (NAPM), formed from 200 grassroots organisations in 1993, and the Joint Forum of Indian People Against Globalisation (Jafip) formed in May 1998 by 55 member groups of farm and labourers unions.

Their constituencies number millions and come from a whole range of backgrounds. Mostly inspired by Mahatma Gandhi, they are dedicated to non-violent civil disobedience and call for a development based on self-reliance and village-level democracy.

As a result of the movement, illiterate peasant farmers in some regions are more likely to have heard of the WTO than the average Briton. Hundreds of thousands of farmers, labourers, tribal people and industrial workers from all over India gathered last year at a Jafip conference in Hyderabad, demanding that India withdraw from the WTO.

The protest was sparked partly by 450 suicides of peasant farmers in the states of Andra Pradesh and Karnataka, which Jafip says were the result of WTO policies such as the removal of tariffs on edible oils.

The state police have responded harshly to the protests. Last month the charismatic "Alternative Nobel Prize" winner, Medha Patkar, and 300 other members of the NAPM were arrested at Multai in Madhya Pradesh. They were calling for a peasant rights day to commemorate the 24 farmers killed by police at a peaceful protest in the city.

Patkar says: "So-called modern technology has [created] dependency on pesticides and fertilisers, and on the market. They can't stand up against the corporate sector. Protests by farmers make the politicians agitated because, if the farmers rise up, that is 70 per cent of India's population."

Environmentalist Vandana Shiva has led the intellectual barrage against the patenting of traditional Indian seeds and plants by foreign corporations. "Patents on seeds would destroy 75 per cent of Indian livelihoods linked to the land and the free availability of and access to biodiversity," she says.

Farmers from all over India are now forming collective seed banks as a form of non co-operation with intellectual property rights regimes. Despite pressure on the Indian government from the WTO, protests against patents on seed and indigenous knowledge have twice prevented the Patent Amendment Act from being passed into law.

THE introduction of biotechnology has also led to huge protests. Karnataka state farmers, among others, burned fields planted with genetically modified crops during "Cremate Monsanto" action last November.

Women are often at the forefront of the direct action protests, especially against the Narmada valley development project, which proposed to build 30 large, 135 medium and 3,000 small dams on the Narmada river and its tributaries.

The latest dam protest is against the privately financed Maheshwar dam, which would submerge some 2,500 acres of land, displacing 2,200 families. Construction has been interrupted several times after thousands of villagers, the majority of them women, invaded the site.

One village woman who took part in the occupation said: "The government officials say we are backward people, uneducated people, but it is because of us, the backward and uneducated women, that this country works." The women have faced beatings, arrests and gang rape by police.

People's movements in India have all documented serious cases of state repression. In a 1997 report Amnesty International said the restructuring of the global economy meant that the role of the state was undergoing a fundamental transformation "in which rights of people are frequently given less weight in public policy than the interests of capital".

The report was based on the suppression of Indian protests against the Enron corporation's plan to build India's largest power plant in the western state of Maharastra. The power it generates will cost three times as much as local electricity, and Enron is expected to have a profit margin of 37 per cent.

Indian activists realise that communities around the world are facing similar pressures and issues. International networking is leading to some unprecedented North-South activism. This summer Indian farmers are planning to tour Europe as part of the People's Global Action network and to meet with local campaigning groups to protest at the gates of global decision-makers and corporations.

The new environment movement may be increasing in size but it is by no means politically homogeneous. There is no single national structure to rival the main parties and there are serious divisions between activists — some of whom want to move into mainstream politics, and others who want to stay outside.

Nevertheless Patkar speaks for many: "Our vision for life is based on equality, simple living, and self-reliance at every level. Through reconstruction and self-action, communities can assert the right to their own resources and development planning. This is our hope for the future."

Burning issue . . . Indian farmers set fire to genetically modified crops as part of their 'Cremate Monsanto' day

Guardian Weekly

GM crops 'will not end world hunger'

John Vidal

THE introduction of genetically modified crops to the world's poorest countries could lead to famine instead of feeding more than 800 million hungry people worldwide, says Christian Aid.

In a report out this week the charity argues that GM crops are "irrelevant" to ending world hunger, will concentrate power in too few hands and will strip small farmers of their independence.

It also condemns "suicide seeds" that contain a terminator gene which makes the next generation of seeds sterile, forcing farmers to buy new seed every year. Currently 80 per cent of crops in the developing world are from saved seed. Christian Aid says the consequences of such massive influence on the world food supply could be one of the most serious developments in history.

It says: "GM crops are . . . creating classic preconditions for hunger and famine. A food supply based on too few varieties of patented crops are the worst option for food security. More dependence and marginalisation loom for the poorest."

Christian Aid says that large farmers are the only ones to benefit from GM technology. Indian research showed that land reform and simple irrigation can boost crops by 50 per cent, against 10 per cent increases from planting GM crops.

Christian Aid calls for a five-year freeze on GM crops and for resources to be put into sustainable and organic farming.

Flaws in the food chain

We need a moratorium

THE PRESSURE for a moratorium on genetically modified food — at least until more rigorous testing has been done — is beginning to look like a tidal wave. It has produced an unholy alliance of William Hague, John Redwood, leftward-leaning lobbies and the European Parliament (which yesterday voted for legislation that could make biotech companies legally responsible for the adverse effects of releasing organisms). Yesterday, the Consumers Association urged the Government to block further GM products pending overhaul of the regulatory system — the first call for a ban in its 40 year history.

There is a case for calling a halt if only to allow time for the fog to lift. Let's be clear: genetically modified food *may* turn out to be one of the great achievements of the twentieth century that will enrich our lives and bring cheaper, pesticide-free produce. Talk of Frankenstein foods is completely misleading. In the much longer run it may help to feed the poorer parts of the world by producing crops that grow in conditions of drought or salt (though no one yet knows how to do such things). But because of its very nature — manipulating the life process itself — it involves a huge leap into the unknown that could have truly fearsome consequences.

It is for this reason that new products must be tested in a far more rigorous and independent way even than other food products.

February 12 1999

pioneering corporations to get an early return on the vast sums they have invested must not stand in the way of protecting the consumer. Memories of BSE are still too strong for new risks to be taken with the food chain when doubts remain.

There are several lessons to be drawn from the disturbing reports we published today of how suppressed research by Dr Arpad Pusztai linking genetically modified potatoes to health risks led an international group of 22 scientists to express their concern to the Guardian. The first is that if the safety of GM foods is a real issue — and it is — then the research on which it is based must be open and beyond contention. The results of studies on rats of the kind Dr Pusztai has conducted are notoriously difficult to transfer to humans. If they had been we would have cured cancer ages ago. But that's not the point. Animal studies are our first line of defence and if research fails that test there is no point in pursuing it for humans unless proved otherwise.

Second, we should be doubly on alert when an issue like this is complicated by the spectre of business, science and government forcing through an unwelcome and uninvited extension of the run of foods on the public when the question how dangerous they could be is unanswered. Protagonists of GM foods would argue that it is a bit ironic that a public addicted to synthetic or junk foods should start worrying about tiny genetic alterations to staple crops that have been undergoing genetic alterations by random mutation, accident and natural selection for thousands of years. But, again, that's not the point. We can't rewrite the past, we can affect the future. And we simply don't know. The third lesson is to underline the necessity of labelling every food product that currently contains GM constituents in a clear way so people at least know what they are buying.

Tony Blair may feel that he is a victim of another media bandwagon — on to which Mr Hague was quick to jump. But that is not true. There is a growing consensus of people and experts of all persuasion deeply concerned about this leap into the unknown. Mr Blair should seize the initiative and declare a moratorium until further research can satisfy the burgeoning band of doubters.

Rachel's Environment & Health Weekly

February 11, 1999

It is safe to say that never before in the history of the world has such a rapid and large-scale revolution occurred in a nation's food supply. And not just the U.S. is targeted for change. The genetically engineering companies (all of whom used to be chemical companies) -- Dow, DuPont, Novartis, and preeminently Monsanto -- are aggressively promoting their genetic engineered seeds in Europe, Brazil, Argentina, Mexico, India, China and elsewhere. Huge opposition has developed to Monsanto's technology everywhere it has been introduced outside the United States. Only in the U.S. has the "agbiotech" revolution been greeted with a dazed silence.

By next year, if Monsanto's plans develop on schedule -- and there is no reason to think they won't -- 100% of the U.S. soybean crop will be genetically engineered. Eighty percent of all the vegetable oils in American foods are derived from soy beans, so most foods that contain vegetable oils will contain genetically engineered components by next year or the year after.[1-pg.52]

Today Pillsbury food products are made from genetically-engineered crops. Other foods that are now genetically engineered include Crisco; Kraft salad dressings; Nestle's chocolate; Green Giant harvest burgers; Parkay margarine; Isomil and ProSobee infant formulas; and Wesson vegetable oils. Fritos, Doritos, Tostitos and Ruffles Chips -- and french fried potatoes sold by McDonald's -- are genetically engineered.[1-pg.51]

✳ Monsanto -- the clear leader in genetically engineered crops -- argues that genetic engineering is necessary (nay, *essential*) if the world's food supply is to keep up with human population growth. Without genetic engineering, billions will starve, Monsanto says. However, neither Monsanto nor any of the other genetic engineering companies appears to be developing genetically engineered crops that might solve global food shortages. Quite the opposite.

✳ If genetically engineered crops were aimed at feeding the hungry, then Monsanto and the others would be developing seeds with certain predictable characteristics: (a) ability to grow on substandard or marginal soils; (b) plants able to produce more high-quality protein, with increased per-acre yield, without increasing the need for expensive machinery, chemicals, fertilizers, or water; (c) they would aim to favor small farms over larger farms; (d) the seeds would be cheap and freely available without restrictive licensing; and (e) they would be for crops that feed people, not meat animals.

✳ None of the genetically engineered crops now available, or in development (to the extent that these have been announced) has any of these desirable characteristics. Quite the opposite. The new genetically engineered seeds require high-quality soils, enormous investment in machinery, and increased use of chemicals. There is evidence that their per-acre yields are about 10% lower than traditional varieties (at least in the case of soybeans),[1-pg.44] and they produce crops largely intended as feed for meat animals, not to provide protein for people. The genetic engineering revolution has nothing to do with feeding the world's hungry.

Big corporations tighten grip on world food supply

DEBATE
Andrew Simms

INSTEAD of a plough, the poorly sketched Indian cow pulls an upturned bottle of Monsanto's herbicide in promotional leaflets that are distributed in Indian villages. In Brazil, even before legal permission for commercial growing has been given, farmers are invited to demonstrations of genetically modified soya, and Monsanto is in court for alleged illegal planting.

In a David and Goliath struggle between farmers, landless labourers and huge multinational corporations, it is Goliath who has the lethal weapon. The advent of genetically modified crops and an emerging international regime that allows companies to turn public natural resources into private property is intensifying the balance of power.

The top 10 agrochemical companies control 85 per cent of the global agrochemical market; the top five control virtually the entire market for GM seeds. Concentration of ownership within the industry is increasing. Monsanto has bought stakes in the major national seed companies of both India and Brazil. Outside China, these are the farming giants of the developing world. A spate of massive mergers and the tight control afforded by the new gene technologies, added to the lobbying and marketing clout of the agro-biotech companies, means enormous power over the world's food supply has been grabbed by very few hands.

Is the world sleepwalking into a gene trap? Mario Gusson, who works in Brazil with Christian Aid-backed organisations, thinks so: transnational corporations will have a monopoly over price, hence control over food production and manipulation of the market.

Without a global competition policy or enforceable code of practice for multinationals, Adam Smith's age-old warning should be heard: people of the same trade seldom meet together . . . but the conversation ends in a conspiracy against the public.

Ismail Serageldin, head of an influential World Bank-funded global network of agricultural research centres, has questioned whether biotech advances will be to the public good. Hi-tech farming has always been like a glass bicycle, it looks good in the showroom, but just try riding it on the farm tracks of poor countries.

One legacy of the last farming revolution is the permanent loss of at least 75 per cent of food varieties. In the heartlands of the so-called green revolution, despite increases in food supply and even allowing for population increase, more people were left hungry.

Today 70 per cent of GM crops are engineered not to improve their food value but to make them dependent on the seed companies' own-brand agrochemicals. They maximise profit and market share for the parent company, while tying farmers into tight contracts.

Environmental impact, too, follows the harmful farm tracks of the past. Using herbicide-tolerant crops is like giving one plant a genetic radiation suit, then dropping a small nuclear device to wipe out all other plant life in the area as well as the animal life that depends on it and any hope of sustainable agriculture. Battered by criticism, the agro-biotech firms argue that we need GM crops to feed a hungry world. Such claims take the debate on hunger and poverty back to the Dark Ages.

We know there is more food than we need to feed the world, yet more than 800 million people go hungry. Eight out of 10 children in developing countries live surrounded by food surpluses.

GM crops cannot resolve these paradoxes but, by concentrating power into fewer hands and continuing the green revolution trend of farming based on monocrops and dwindling natural resources, they can make it worse.

People go hungry because they are poor and because they have no land on which to grow food. Poor farmers stay hungry because they lack access to water and credit, and lose out in the hustle for government support that rich farmers and corporations win.

GM crops are being promoted in poor countries before any international agreement on biosafety measures. The huge soya-growing state of Rio Grande do Sul in Brazil is fighting against GM crops and alleged illegal planting of GM soya by Monsanto's affiliate Monsoy. If they lose, consumers in Brazil and elsewhere could lose their choice in a wide range of GM-free products that depend on soya. Their struggle has become every consumer's struggle.

Andrew Simms is author of the Christian Aid report, Selling Suicide, about farming and genetic engineering in developing countries

Watchdog slams Monsanto ads

28 February 1999 **The Observer**

by John Aridge

MONSANTO, the US company at the centre of the storm over genetically modified food, has been condemned for making 'wrong, unproven, misleading and confusing' claims in a £1m advertising campaign.

The ruling, by the Advertising Standards Authority, the industry's official watchdog, is a humiliating blow to the company which is struggling to persuade sceptical consumers that food from genetically modified crops is safe.

The Observer has obtained a draft report on the authority's investigation into more than 30 complaints about Monsanto's advertisements. It says the US giant expressed its own opinion 'as accepted fact' and published 'wrong' and 'unproven' scientific claims.

The Green Party and food safety campaigners who are campaigning for a total ban on GM food welcomed the ruling yesterday. Andy Spring, of the Green Party, said: 'Monsanto has been caught out misleading the public. They should apologise to consumers and print a retraction in full-page newspaper ads.

'If they are prepared to hoodwink the public, what have they been telling their friends in Government? We know they have been lobbying Ministers and officials to try to get their products on to supermarket shelves. Have they been economical with the truth? The public need answers.'

The Greens, GeneWatch, the Royal Society for the Protection of Birds, the Soil Association and members of the public wrote to the Advertising Standards Authority last year complaining that Monsanto had breached the ASA's rules.

The series of commercials, by the London-based advertising agency Bartle Bogle Hegarty, began with a full-page ad which read: 'Food biotechnology is a matter of opinions. Monsanto believes you should hear all of them.'

Over the next few weeks the company went on to describe 'the real benefits of biotechnology for both consumers and the environment'.

GM technology had undergone 'rigorous tests throughout Monsanto's 20-year biotech history to ensure our food crops are as safe and nutritious as the standard alternatives'. Government agencies in 20 countries, including Britain, had approved them as safe.

GM foods were 'grown in a more environmentally sustainable way, less dependent on the earth's scarce mineral resources,' Monsanto boasted.

In its report the ASA criticised the firm for wrongly giving the impression that genetically modified potatoes and tomatoes had been tested and approved for sale in Britain. The authority also dismissed Monsanto's assertion that GM crops were more environmentally friendly than ordinary crops.

Monsanto has seven days to challenge the draft report before it is submitted to the full council of the ASA. Dan Verakis, spokesman for the company, expressed disappointment last night at the ruling but pointed out that some advertisements had already been amended.

'We were the first biotech company to attempt to explain this complicated science and to help consumers understand it better. We expected it to be controversial and we expected the activist industry to be very critical,' he said. 'We do not wish to mislead anyone. We look forward to discussing this report because we have been misunderstood.'

TO THE PERSONAL ATTENTION OF the Guardian, Mrs. Zoe

The "Monsanto story" - genetically modified foods and terminator seeds intended to capture, permanently, the international food production sector - has been all but ignored by the U.S. mainstream media. As the enclosures testify to, the British press (led by The Manchester Guardian and London Observer), have fully informed their readers. If you will give particular attention to Dr. Putzsai's research, we are confident you will accept your special responsibility to ignore the profits and power of one giant U.S. transnational, to remedy this absence of coverage because, clearly, the health of us all - ours and future generations worldwide - is at stake. If Monsanto escapes scrutiny here (in part due to full page ads as appeared late April in The N.Y. Times that, unlike in Britain, were not challenged by an informed citizens' group), GM foods will be favored by The World Trade Organization, World Bank, IMF and other globally influential, U.S.-based, institutions. Decisions are to be taken very soon now, so all we can do is to respectfully request immediate concern

Thankyou. P.S. Must also see Mail on Sunday

nchester Guardian Weekly

5-16-99

The Washington Post Le Monde

Big corporations tighten grip on world food supply

DEBATE
Andrew Simms

INSTEAD of a plough, the poorly sketched Indian cow pulls an upturned bottle of Monsanto's herbicide in promotional leaflets that are distributed in Indian villages. In Brazil, even before legal permission for commercial growing has been given, farmers are invited to demonstrations of genetically modified soya, and Monsanto is in court for alleged illegal planting.

In a David and Goliath struggle between farmers, landless labourers and huge multinational corporations, it is Goliath who has the lethal weapon. The advent of genetically modified crops and an emerging international regime that allows companies to turn public natural resources into private property is intensifying the balance of power.

The top 10 agrochemical companies control 85 per cent of the global agrochemical market; the top five control virtually the entire market for GM seeds. Concentration of ownership within the industry is increasing. Monsanto has bought stakes in the major national seed companies of both India and Brazil. Outside China, these are the farming giants of the developing world. A spate of massive mergers and the tight control afforded by the new gene technologies, added to the lobbying and marketing clout of the agro-biotech companies, means enormous power over the world's food supply has been grabbed by very few hands.

Is the world sleepwalking into a gene trap? Mario Gusson, who works in Brazil with Christian Aid-backed organisations, thinks so: transnational corporations will have a monopoly over price, hence control over food production and manipulation of the market.

Without a global competition policy or enforceable code of practice for multinationals, Adam Smith's age-old warning should be heard: people of the same trade seldom meet together . . . but the conversation ends in a conspiracy against the public.

Ismail Serageldin, head of an influential World Bank-funded global network agricultural research centres, has questioned whether biotech advances will be to the public good. Hi-tech farming has always been like a glass bicycle, it looks good in the showroom, but just try riding it on the farm tracks of poor countries.

One legacy of the last farming revolution is the permanent loss of at least 75 per cent of food varieties. In the heartlands of the so-called green revolution, despite increases in food supply and even allowing for population increase, more people were left hungry.

Today 70 per cent of GM crops are engineered not to improve their food value but to make them dependent on the seed companies' own-brand agrochemicals. They maximise profit and market share for the parent company, while tying farmers into tight contracts.

Environmental impact, too, follows the harmful farm tracks of the past. Using herbicide-tolerant crops is like giving one plant a genetic radiation suit, then dropping a small nuclear device to wipe out all other plant life in the area as well as the animal life that depends on it and any hope of sustainable agriculture. Battered by criticism, the agro-biotech firms argue that we need GM crops to feed a hungry world. Such claims take the debate on hunger and poverty back to the Dark Ages.

We know there is more food than we need to feed the world, yet more than 800 million people go hungry. Eight out of 10 children in developing countries live surrounded by food surpluses.

GM crops cannot resolve these paradoxes but, by concentrating power into fewer hands and continuing the green revolution trend of farming based on monocrops and dwindling natural resources, they can make it worse.

People go hungry because they are poor and because they have no land on which to grow food. Poor farmers stay hungry because they lack access to water and credit, and lose out in the hustle for government support that rich farmers and corporations win.

GM crops are being promoted in poor countries before any international agreement on biosafety measures. The huge soya-growing state of Rio Grande do Sul in Brazil is fighting against GM crops and alleged illegal planting of GM soya by Monsanto's affiliate Monsoy. If they lose, consumers in Brazil and elsewhere could lose their choice in a wide range of GM-free products that depend on soya. Their struggle has become every consumer's struggle.

Andrew Simms is author of the Christian Aid report, Selling Suicide, about farming and genetic engineering in developing countries

GM crops 'will not end world hunger'

John Vidal

THE introduction of genetically modified crops to the world's poorest countries could lead to famine instead of feeding more than 800 million hungry people worldwide, says Christian Aid.

In a report out this week the charity argues that GM crops are "irrelevant" to ending world hunger, will concentrate power in too few hands and will strip small farmers of their independence.

It also condemns "suicide seeds" that contain a terminator gene which makes the next generation of seeds sterile, forcing farmers to buy new seed every year. Currently 80 per cent of crops in the developing world are from saved seed. Christian Aid says the consequences of such massive influence on the world food supply could be one of the most serious developments in history.

It says: "GM crops are . . . creating classic preconditions for hunger and famine. A food supply based on too few varieties of patented crops are the worst option for food security. More dependence and marginalisation loom for the poorest."

Christian Aid says that large farmers are the only ones to benefit from GM technology. Indian research showed that land reform and simple irrigation can boost crops by 50 per cent, against 10 per cent increases from planting GM crops.

Christian Aid calls for a five-year freeze on GM crops and for resources to be put into sustainable and organic farming.

E + Sec

Personal & Urgent

DR. JAN HENNEY, DIRECTOR
FOOD AND DRUG ADMINISTRATION
5600 FISHERS LANE, ROOM 14-71
ROCKVILLE, MD 20857